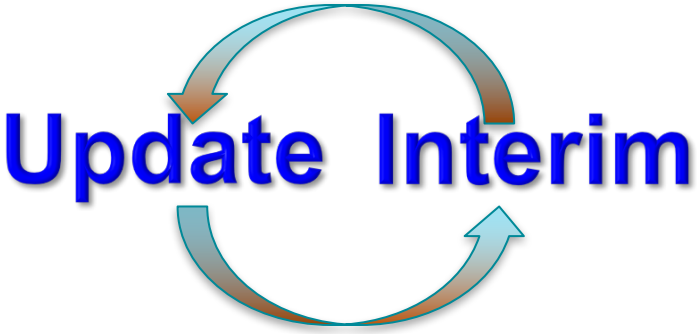
NOAA Fisheries Updates

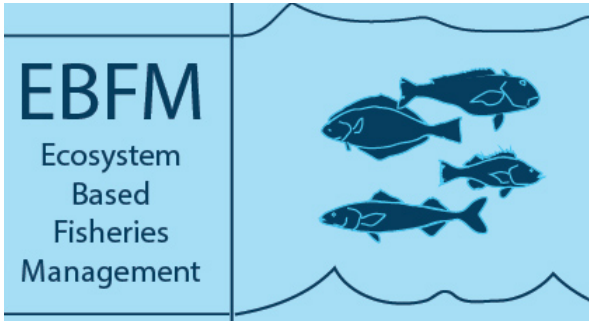
Dr. Cisco Werner
Director of Scientific Programs and
Chief Science Advisor

SAFMC
8 Dec 2017
Atlantic Beach, NC

Outline

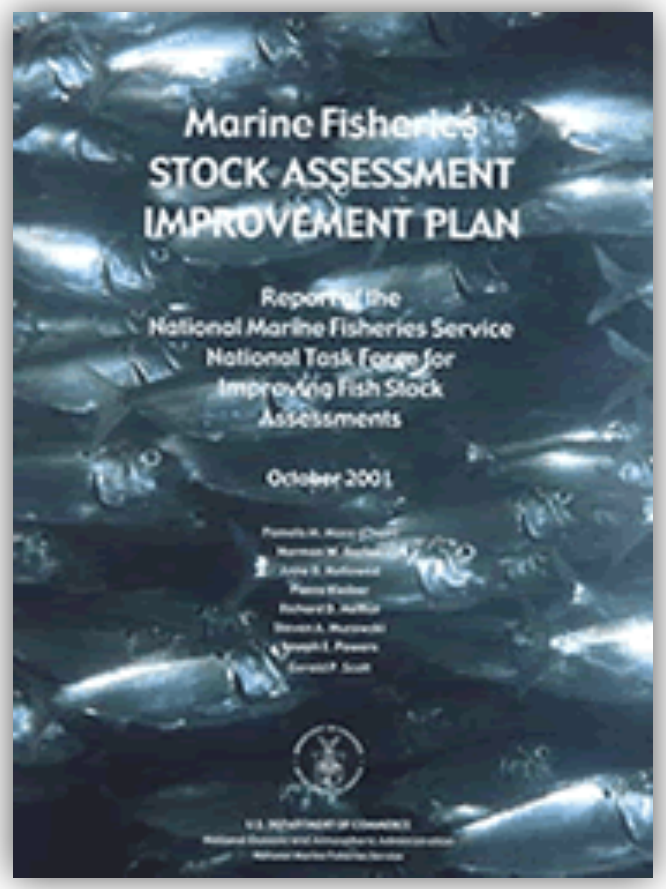
- Stock Assessments
- Stock Prioritization
- Ecosystem Based Fisheries Management
- MRIP (Marine Recreational Information Program)

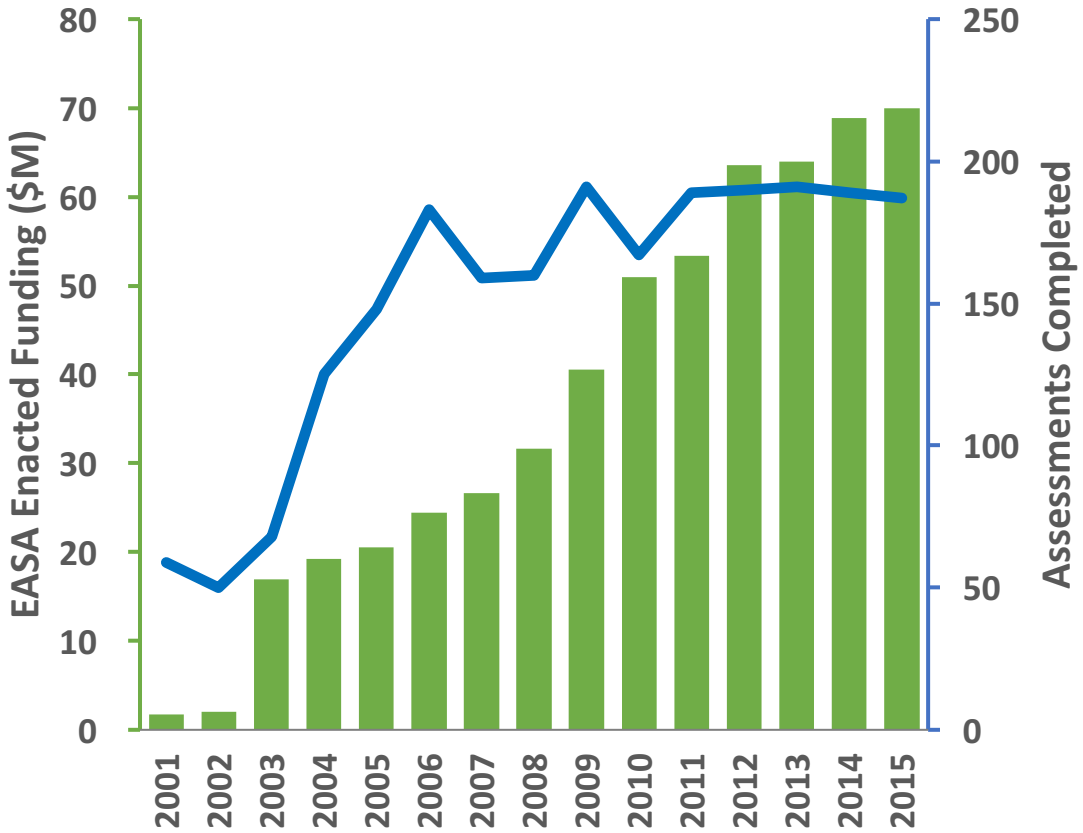




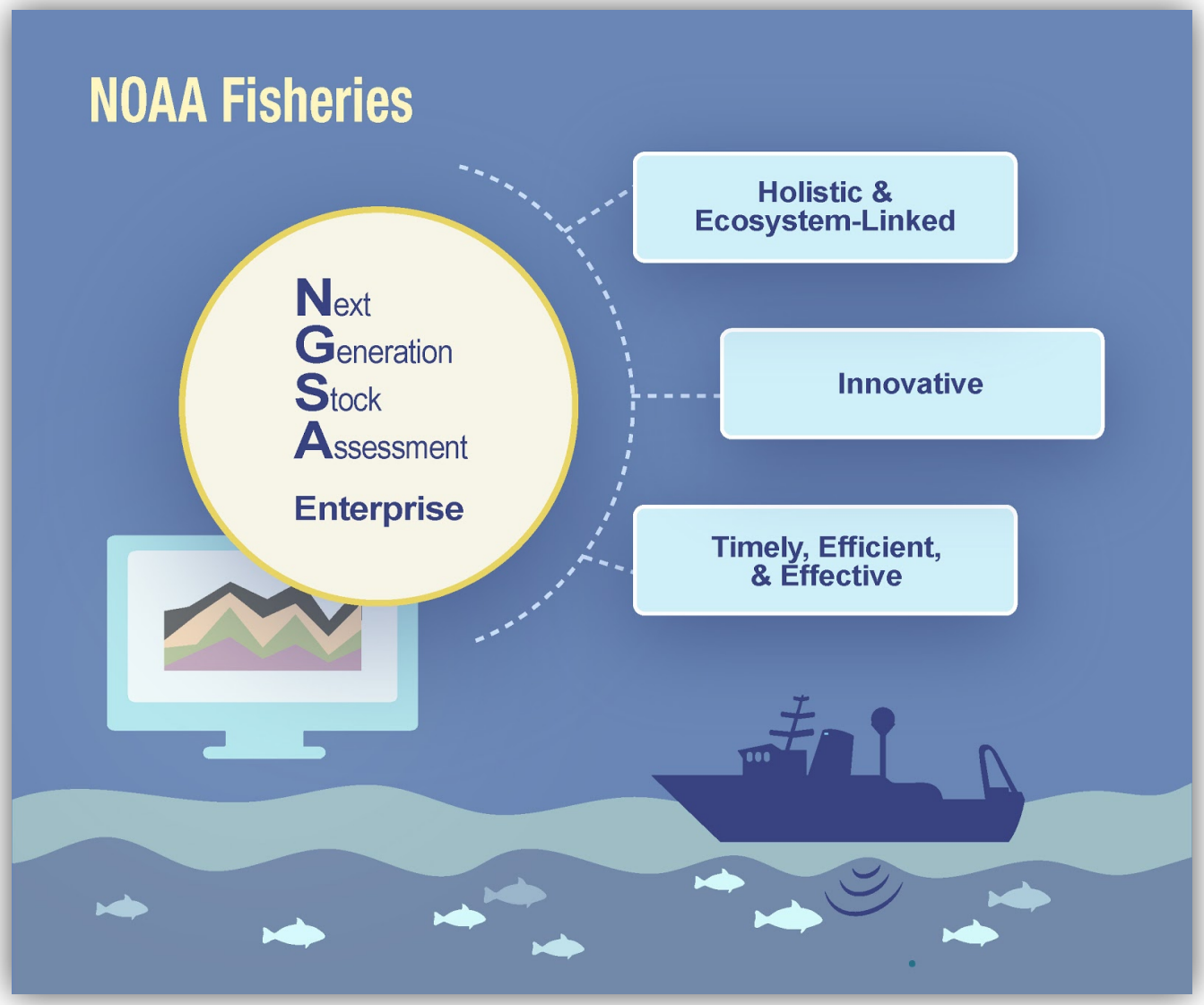
Stock Assessment Improvement Plan (SAIP)

First SAIP – Mace et al. 2001





Next Generation



SAIP: Timely, efficient, and effective

- Establish timely and efficient assessment processes by separating research-track from operational assessments
- Streamlining the operational process
- Maintain effective stock assessments with standardized approaches
- Balancing the "4**T**s" of assessment **T**hroughput, **T**imeliness, **T**horoughness, and **T**ransparency

Next Generation Stock Assessment

The 4Ts of Assessment Demands

Throughput

Expectation
Conduct a high number of assessments each year to support development of annual catch limits.

Reality
There are many more stocks under NOAA's purview than can be assessed in a year with current capacity.

Solution
Objective prioritization to determine the stocks most needing assessment; conduct more routine update assessments.

Timeliness

Expectation
Utilize current information and rapidly develop advice for management decisions.

Reality
Regional approaches to processing and assembling data, modeling, and reviewing assessments vary substantially.

Solution
Standardized and right-sized data delivery, modeling options, and peer review.

Thoroughness

Expectation
Assessments should be comprehensive investigations with fully-independent peer reviews.

Reality
Current data availability and assessment capacity do not facilitate comprehensive assessments for all stocks.

Solution
Objective prioritization to determine the stocks in need of comprehensive investigations.

Transparency

Expectation
Results should be fully documented, clearly communicated, and accessible for public understanding.

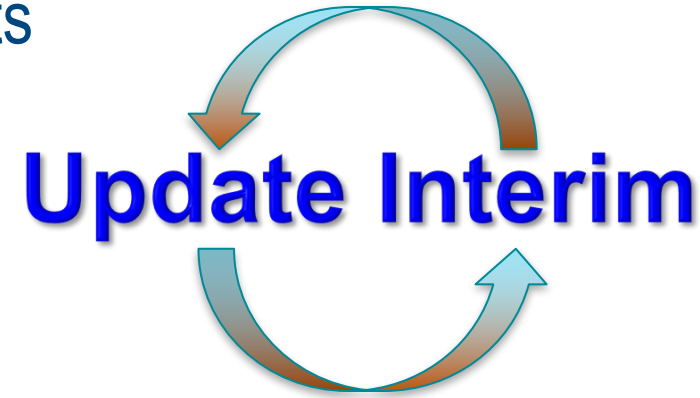
Reality
Assessments are complicated, produce numerous results, and a variety of communication formats are used.

Solution
Standardized and tiered reporting templates that summarize results at various levels of detail.

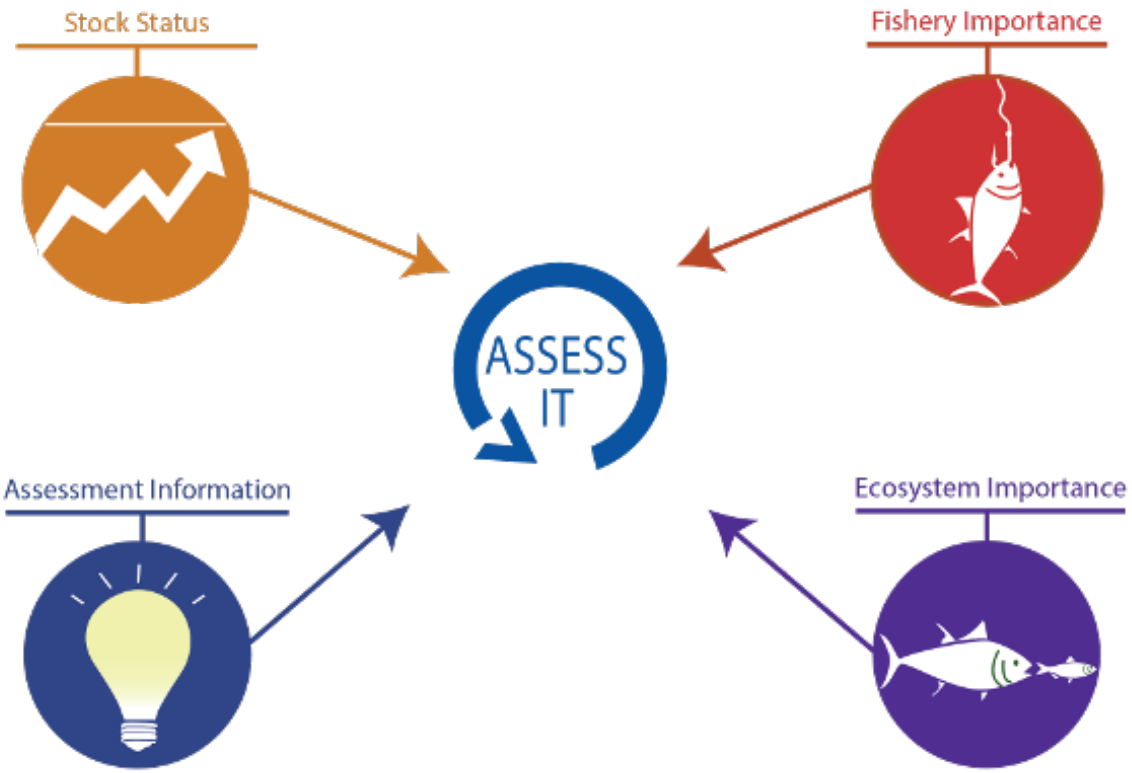
Streamlining the operational process

Encourage adoption of an operational process

- **Key stock cycle,** discussed at your last SSC meeting
  - Regularly schedule assessments of primary stocks
  - Increased output
  - Streamlined reports
  - Timely results
  - Efficiency gains over time should lead to further increased output



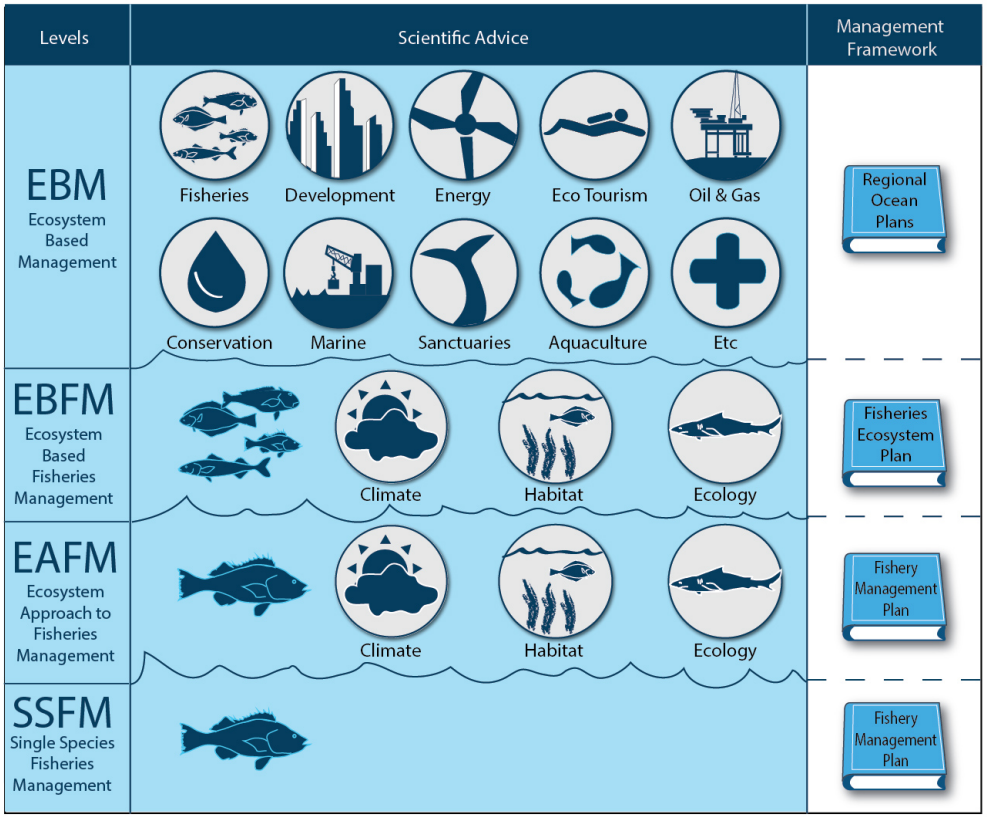
Stock Prioritization



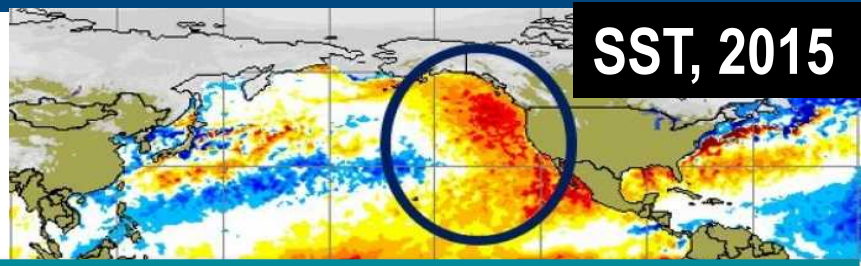
- Each Council developed/developing tools to balance each regions needs and priorities

Ecosystem Based Fisheries Management (EBFM)

- Help meet sustainable fisheries goals under multiple mandates
  - *Facilitates tradeoffs among priorities*
  - *Benefits of a systematic approach*
- Address and prepare for challenges in changing environmental and ecological conditions



Why EBFM?



Pacific cod 2017 assessment

Importance of including ecosystem and environmental considerations

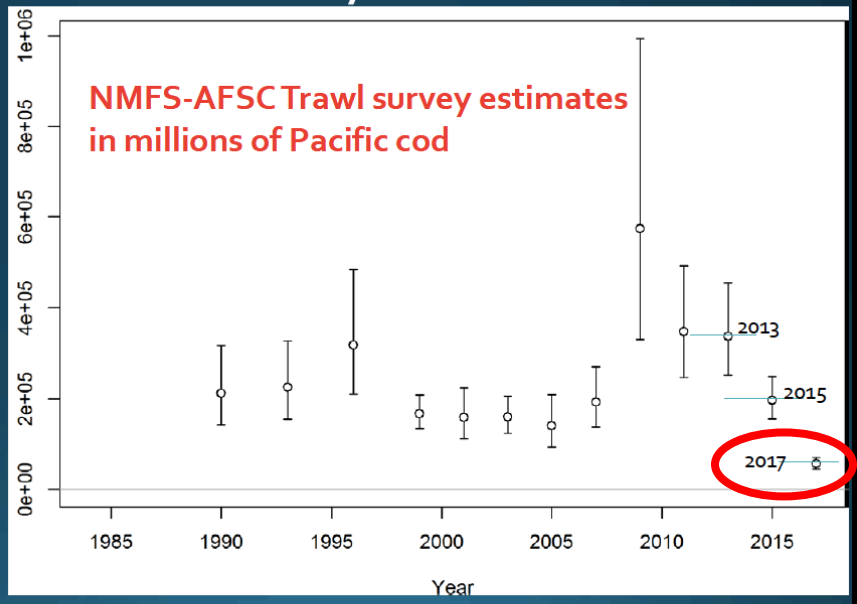
S. Barbeaux
https://npfmc.legistar.com/View.ashx?M=F&ID=5485956&GUID=CBE79CD6-801C-419A-89AF-B8F00B4788B7

2017 Bottom trawl survey

Lowest estimate
- 196 million fish and 107,324 t
- Precise (12% CV)

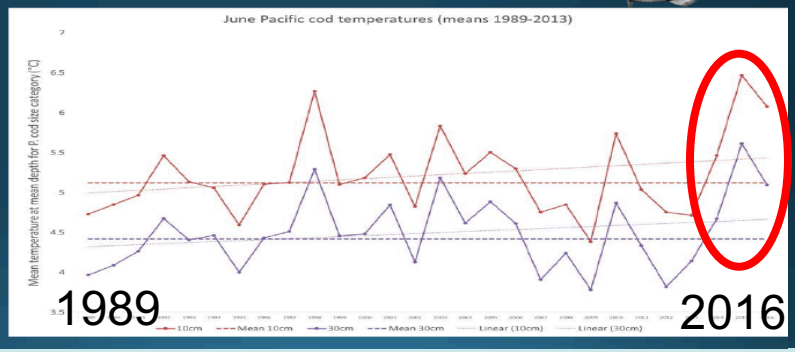
71% drop from 2015 estimate
- 83% drop from 2013

58% decline in biomass since 2015 (78% since 2013)



Anomalously warm waters for Pacific cod

2014-2016 different in that temperatures were higher for entire year



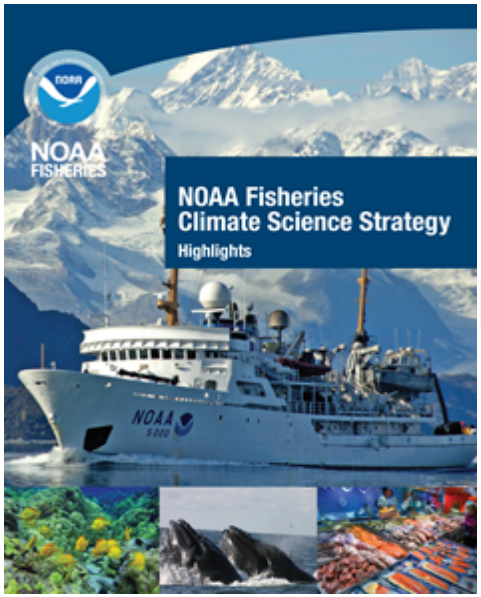
Pacific cod bio-energetics - Summary

- Warmer temperatures were throughout the year and water column
- Higher metabolism in warmer temps lead to higher forage requirements
- Indications of lower forage amounts in 2015-2016
- Combination could have lead to higher natural mortality for these years for the 2012 year class.

NMFS Climate Science Strategy

Climate Science Regional Action Plans (RAPs)

- Over 200 actions to support climate-ready fisheries management



RESULTS:

Critical Information

Climate-Ready Management

Resilient Resources & Communities

NMFS Climate Science Strategy: Key actions

WHAT IS CHANGING?

- ✓ Maintain existing monitoring of key fisheries and ecosystem conditions
- ✓ Track distributions of over 650 fisheries related species
- Strengthen **Ecosystem Status Reports** and early warnings

WHY & HOW WILL IT CHANGE?

- ✓ Fish Stock Vulnerability Assessments (Northeast, Bering Sea, California Current)
- ✓ Launch new **Fish Stock Vulnerability Assessments** (Pacific Islands, Gulf of Mexico)
- ✓ Climate and fisheries research to inform Stock Assessments
- Improve Fishing Community Vulnerability Assessments
- Improve forecasts of changing oceans and fish stocks (e.g., Pacific Hake, Sea Scallop)

HOW TO RESPOND?

- ✓ Build capacity for **Management Strategy Evaluations** in each region
- Evaluate future scenarios and fishery management strategies (e.g., Alaska & West Coast)

Current ecosystem-related efforts

- Development of an Ecosystem Status Report (ESR) for the South Atlantic region
  - Develop indicators and analyze trends related to multiple ecosystem components (e.g., physical, climatological, biological, fishery metrics, and human dimensions)
  - Intended to be regularly updated and provided to Council
- Aggregate species production modeling
  - Based on inputs from single species assessments
  - Focused on snapper-grouper complex
  - Estimate of system-wide maximum sustainable yield
- Both intended to support EBFM

Current ecosystem-related efforts

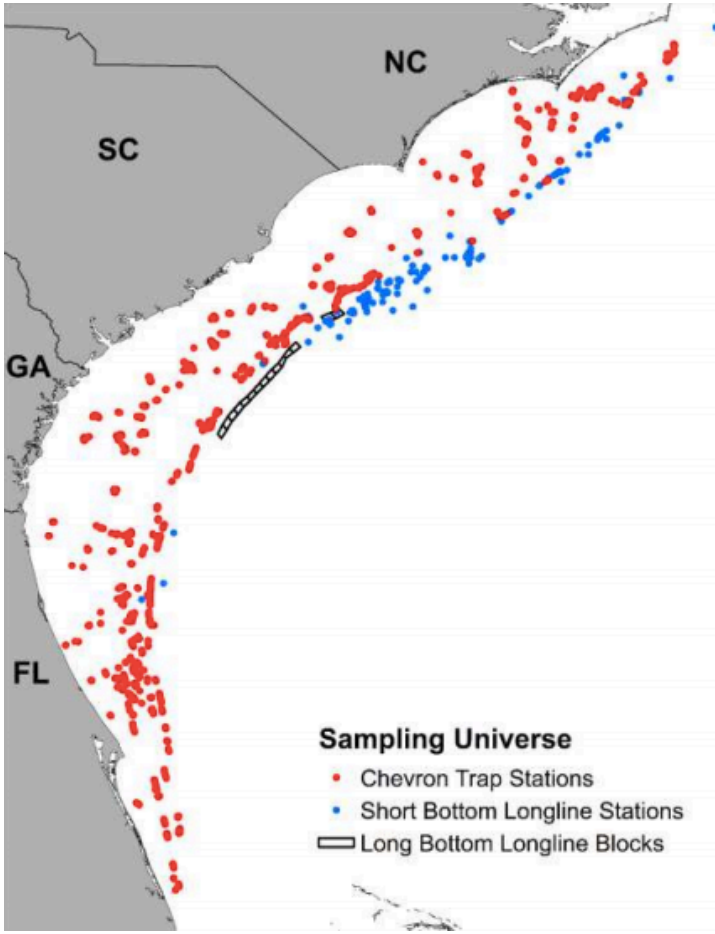
NMFS coordination with SAFMC

Ecosystem modeling

- Food web model (Ecopath with Ecosim)
- Parameterized with survey (SERFS) and life history information from ongoing data collection efforts and other sources

Fishery Ecosystem Plan (FEP) development and implementation

- Incorporate ecosystem principles into fisheries management
- Provide Council with description of ecosystems within which fisheries are managed
- Identifies and prioritizes information needs



How do we do more?

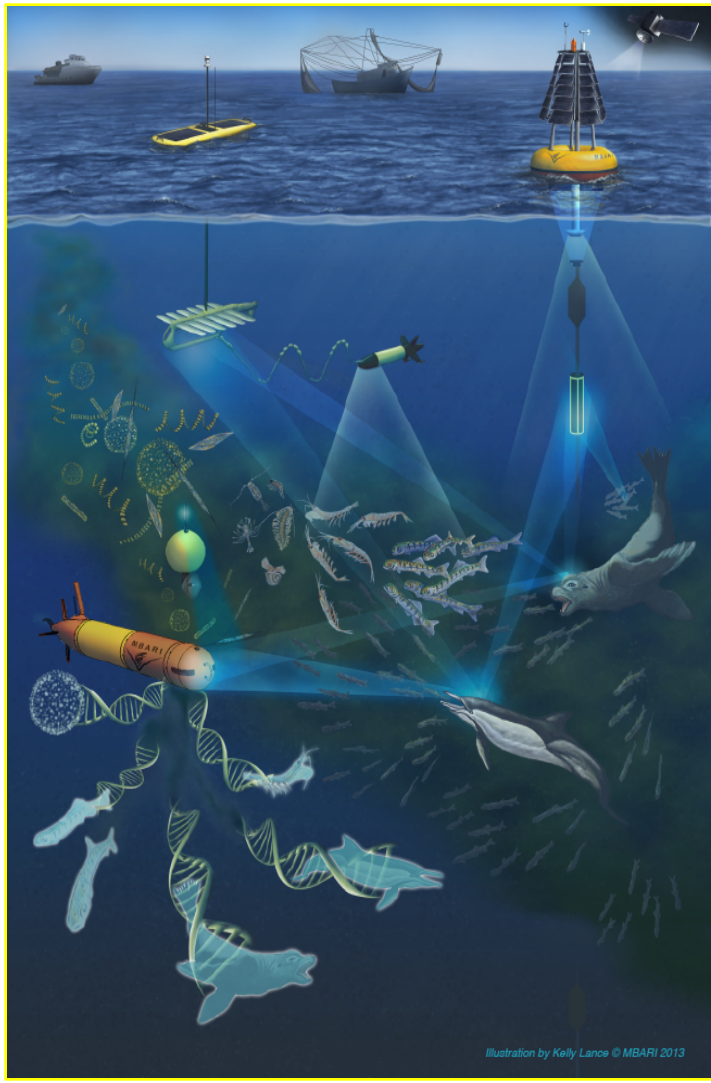
We need to continue to improve our assessments and science advice

Drivers

- We have new policies and directives to address: EBFM, SAIP, CSS
- To increase certainty in a time of increasing uncertainty (evolving ocean conditions under a changing climate)
- Better (more holistic) understanding of the systems we study
- More efficient use of ship- and staff-time

Approach

- We have developed new approaches: joint surveys, advanced technologies, ‘omics, etc.



Joint/Integrated Surveys

US west coast Marine Mammal (and Seabird) and Coastal Pelagics

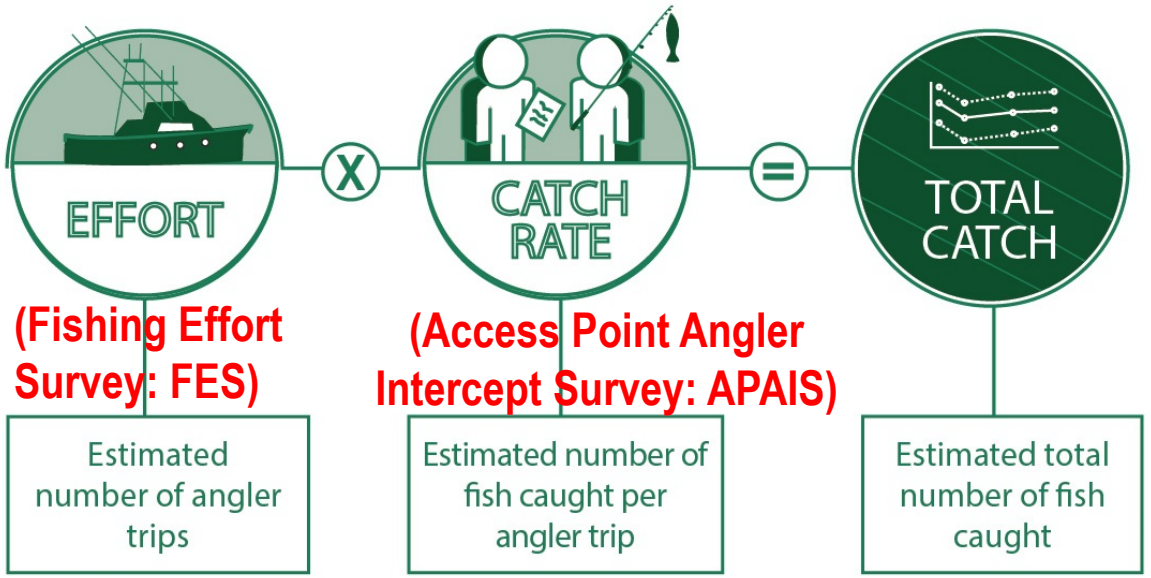
Advantages

- Similar area/distribution
- Predator-prey association
- Same vessel

Challenges

- Different sampling strategies (dictated by biology)
- Science crew size on ships

MRIP Overview



- Fishing Effort Survey
- Access-Point Angler Intercept Survey
- Timeline and Next Steps
- Outreach and Communications
- Regional Implementation Plans

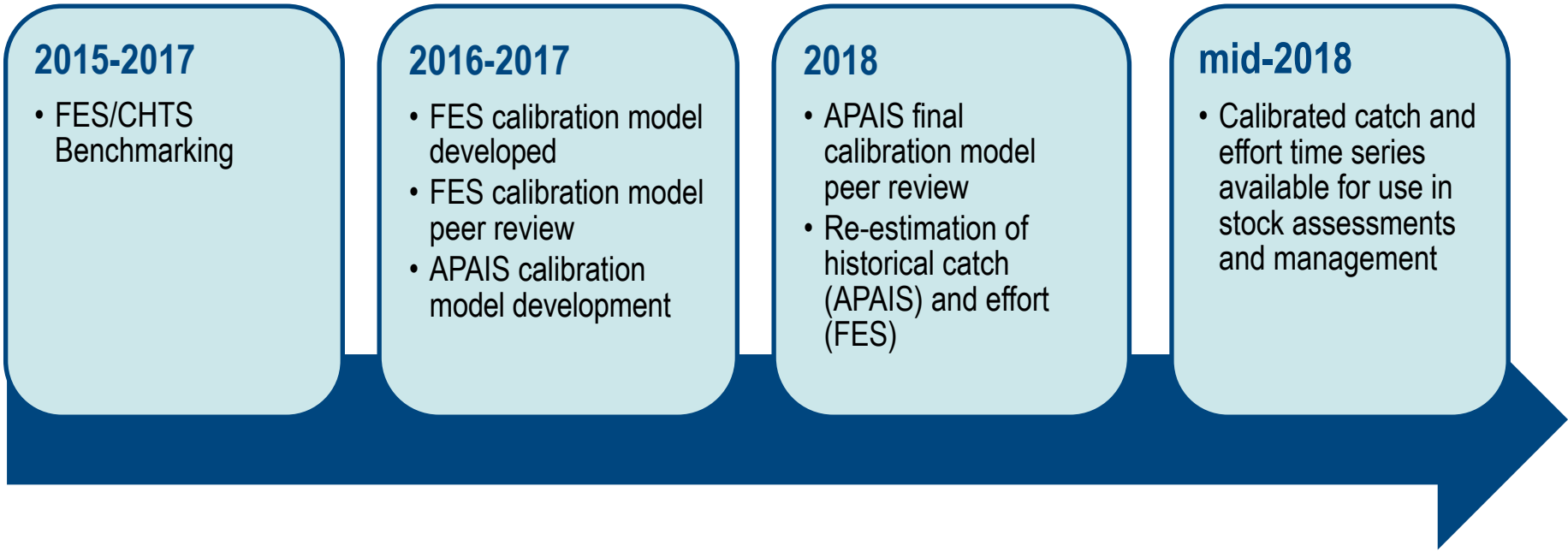
Transitioning to the FES

- The mail survey estimates effort more accurately
- Phasing in of FES
  - Stock assessments and fisheries management rely on having a comparable time series of recreational catch statistics
  - Calibration needed to convert historical catch estimates into estimates compatible with new survey estimates
  - We need numbers in the **same "currency"**
- Calibration Model Peer Review Workshop: June 27-29, 2017
- Panel's findings were positive

Access-Point Angler Intercept Survey (APAIS)

- MRIP implemented a new APAIS sampling design in 2013
- Potential for bias has been greatly reduced
  - Strict adherence to formal probability sampling protocols
  - Expanded temporal coverage of daytime/nighttime fishing
  - Site-time assignments completed without rescheduling
- Calibration model is needed to account for possible effects of the APAIS design change on catch-rate estimates
- Historical catch data will be updated based on calibration
- **APAIS numbers will be combined with FES numbers to produce total catch**

FES/APAIS Timeline



- Phone survey estimates will be used for science and management until the calibration models are peer-reviewed, adopted and used to update stock assessments and annual catch limits
- Transition Plan developed with extensive regional and state-level input through Atlantic and Gulf subgroup of the Transition Team

Next Steps

What we can expect over next 3 years:

- **2018:** Revised data will be available and incorporated into stock assessments for some fisheries
- **July 1, 2018**: Apply both FES and APAIS models to produce final calibrated effort and catch statistics
- **2019:** Preliminary management changes may be made for stocks that have been assessed; additional assessments will be conducted for stocks that were not completed in 2018
- **2020:** Based on new stock assessments, management changes could occur for a number of species

FES Communications and Outreach

- Stakeholder outreach
  - Pilot “listening tour” to discuss the FES transition with stakeholders:
    - December 12th in Plymouth, MA
    - December 13th in Jupiter, FL
- Education and outreach materials
- Regional engagement
- Hill engagement
- Media outreach

Regional Implementation Plans

- Represent a *significant evolution* in the course of MRIP
- Each *region is taking the lead role* in determining which survey methods are most suitable for their science, stock assessment, and management needs
- MRIP will use these plans to *develop a national inventory of partner needs and associated costs*, and annually specify priority-setting criteria for supporting those needs

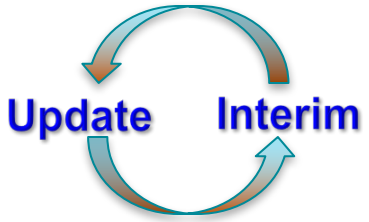
Atlantic Regional Implementation Plan

- Prepared by the ACCSP partners, and accepted by MRIP
- Key identified priorities include:
  - Improve precision of MRIP catch estimates
  - Comprehensive for-hire data collection and monitoring
  - Improved recreational fishery discard and release data
  - Biological sampling for recreational fisheries separate from MRIP APAIS
  - Improved spatial resolution and technical guidance for post-stratification of MRIP estimates
  - Improved timeliness of recreational catch and harvest estimates

Rare Event Species

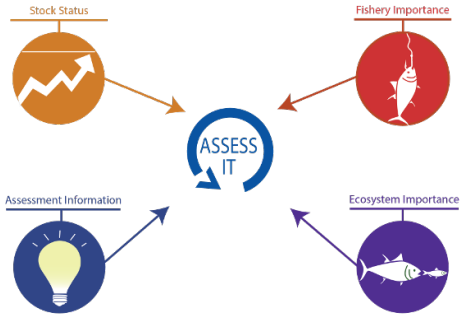
- NMFS, SEFSC, and NEFSC developing a “Rare Event Species” project
  - Improve statistical precision of catch estimates for fish stocks not commonly encountered in shoreside surveys.
  - Identify and evaluate alternative approaches, including specialized surveys, multi-year estimation methods, and small domain estimation methods.(including methods previously briefed to SAFMC’s SSC).
  - Project includes regional partners’ participation.
  - Timeline to be established and communicated to the Councils.
- Need to develop decision rules regarding suitability of estimates for catch monitoring, for example:
  - When to use multi-year vs. single year estimates;
  - “Do not use” guidance for highly imprecise catch estimates.

Summary



Stock Assessments

- Consider ideas like the Key Stock Cycle to improve **T**hroughput and **T**imeliness

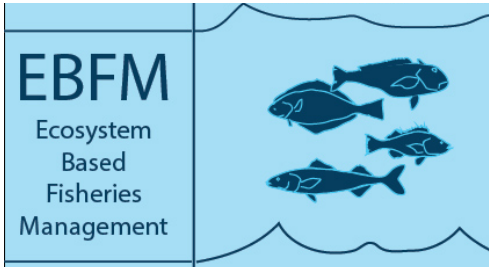


Stock Prioritization

- A fully developed tool/process for selecting stocks for assessment is best

Ecosystem Based Fisheries Management

- Ecosystem reports, vulnerability analyses, MSEs



MRIP

- Mid-2018: calibrated catch and effort time series available for use in stock assessments and management


Thank you